

### **REMARKS**

Reconsideration of the application in light of the amendments and the following remarks is respectfully requested.

#### **Status of the Claims**

Claims 1-9 and 11-19 are pending. Claims 18 and 19 have been added. No new matter has been added.

Claims 6 and 10 stand objected to as being substantial duplicates of claims 8 and 5, respectively. Claim 10 has been cancelled without prejudice or disclaimer of the subject matter contained therein. Claim 8 has been amended to depend from claim 7. Therefore, Applicants submit that amended claim 8 now recites subject matter which is distinct from and thus, patentably distinguishable over claim 6. Withdrawal of this objection is requested.

#### **Allowable Subject Matter**

Applicants appreciatively acknowledge the Examiner's indication of allowable subject matter in claims 4-6, 8-10, 14, and 17.

#### **Status of the Specification**

The Abstract has been objected to for a grammatical informality. Accordingly, the Abstract has been amended to properly recite "welded" where suggested by the Examiner. Withdrawal of this objection is requested.

Further, the Specification has been amended to refer to the reference sign 60, which is depicted in Figure 5(a). No new matter is added.

#### **Objection to the Drawings**

The Examiner has objected to Figures 4, 5(a), and 5(b) for not containing the legend "Prior Art." Additionally, the Examiner has objected Figure 5(a) for containing the reference sign 60 which is not recited in the description. Accordingly, the legend has been added

to Figures 4, 5(a), and 5(b). Further, the Specification has been amended to include reference sign 60. Applicants respectfully request withdrawal and reconsideration of this objection.

**Rejection Under 35 U.S.C. § 103**

Claims 1-3, 7, 11-13, 15 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Applicants' admitted prior art in view of U.S. Patent No. 4,495,397 to Opprecht et al. ("Opprecht"). Applicants traverse this rejection.

The Examiner contends that the Applicants' admitted prior art of Figures 4, 5(a) and 5(b) disclose a method for making a magnetron as recited in the claims, but lacks the step of forming a predetermined number of projections projecting inwardly from the thin end section of an anode cylinder. The Examiner contends that Opprecht discloses a method of joining two metals comprising the step of forming a plurality of projections projecting inwardly from a section of a first metal material. Further, the Examiner states that it would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the Applicants' admitted prior art with Opprecht to result in the claimed inventions of the present application.

Applicants respectfully submit that the Examiner has not met the burden of proving a *prima facie* case of obviousness. First, Applicants submit that a person of ordinary skill in the art of producing a magnetron would not be motivated to manufacture a magnetron using the method disclosed in the Opprecht reference to tightly weld thin end section 6a with metal container 10 as recited in claims 1 and 11. (Application, Fig. 2(a).)

Applicants submit that Opprecht discloses forming a projection for use in electrical resistance welding of metal sheets and thin-wall parts. The projection is formed on one piece to be welded and is abutted against the other piece so that a resistance weld can be formed where the two sheets of metal abut each other. Opprecht discloses that the expanse of the weld connection is governed by the cross-sectional area of the projection. (Opprecht, column 1, lines 15-29.) Therefore, the method disclosed by Opprecht joins two metal sheets with a plurality of individual

weld connections and, thus, does not tightly weld and form the proper seal required for a magnetron.

Applicants submit that a person of ordinary skill in the art of producing a magnetron would not be motivated to manufacture a magnetron using the method disclosed in the Opprecht reference to achieve the step recited in both claims 1 and 11 of "tightly welding said thin end section with said metal container." (Application, Fig. 2(a) items 6a and 10.) A person of ordinary skill in the art would know that the integrity of the cavity's seal has a direct impact on the performance of the magnetron due to parasitic currents and leakage paths. Poor construction impacts the magnetron's frequency characteristics and increases the potential for the creation of destructive arcing currents. The present application discloses that the prior art results in gaps forming between the metal pieces being joined and that these gaps can lead to reduced sealing properties. The claimed invention improves on the prior art by assuring the concentricity of the metal container within the anode cylinder prior to welding by the placement of the projections.

Additionally, in contrast to the method of resistance welding which leaves gaps between weld locations, the present application discloses that the metal container and the anode cylinder are tightly welded together by electron beam welding. Electron beam welding is a process which forms a continuous weld by relative motion between the component being welded and the beam. Further, for circular welds it is common to have a small overlap in rotation to ensure complete 360° fusion. Thus, Applicants submit that the feature recited in claims 1 and 11 of "tightly welding" is supported by the disclosure to be a continuous weld. Opprecht discloses welding at discrete points. Therefore, the combination of Applicants' admitted prior art and Opprecht will not result in the claimed step of "tightly welding said thin end section with said metal container."

Secondly, Applicants respectfully submit that a magnetron manufactured by combining Applicants' admitted prior art and Opprecht would result in an inoperable device. The resulting magnetron would not be operable due to the poor, non-continuous connection between the metal pieces forming the magnetron cavity. As discussed above, the magnetron's operation

would be impacted by the poor construction of the cavity's seal. Thus, the method suggested by the Examiner's combination will not result in a magnetron which can operate predictably or reliably.

Applicants respectfully submit that, for the foregoing reasons, the combination of Applicants' admitted prior art and Opprecht will not result in the method of claims 1 and 11. Therefore, Applicants submit that claims 1 and 11 are patentable over the combination cited by the Examiner. Claims 2, 3, and 7 depend from claim 1. Claims 12, 13, 15 and 16 depend from claim 11. Applicants submit that claims 2, 3, 7, 12, 13, 15 and 16 are patentable for at least the same reasons as their respective base claims. Applicants request withdrawal and reconsideration of the rejection.

### CONCLUSION

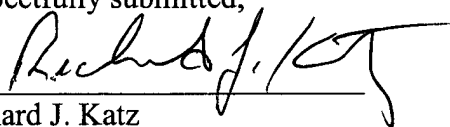
Each and every point raised in the Office Action dated June 19, 2003 has been addressed on the basis of the above amendments and remarks. In view of the foregoing it is believed that claims 1-9 and 11-19 are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Dated: September 18, 2003

Respectfully submitted,

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Attachments